

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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TITLE: PERISTALTIC ROTATION PUMP WITH EXACT, ESPECIALLY MECHANICALLY  
LINEAR DOSAGE

Preliminary Amendment: CLAIM AMENDMENTS

1. (Currently amended) ~~The~~ A peristaltic rotation pump with exact, especially mechanically linear dosing, ~~consisting of~~ comprises:

a pump segment placed on a working path, ~~which is said path being~~ adjacent to an elevated circular supporting occlusal path and a rotor with pressure rollers, ~~characteristic by the fact, that the said pump segment (1) is extended~~ extending along the working path (24), and both ends of ~~the said pump segment (1) lean~~ leaning against ~~the~~ a supporting surface (18) outside the working path (24), the working path ~~is being~~ transversally grooved at the place of contact with the compressed pump segment (1) and ~~is being~~ adjacent within all its length to an elevated circular supporting occlusal path (3) on which at least two pressure rollers (4) roll, ~~which are the rollers being~~ freely sliding mounted with their outside surface in a hollow slide mounting (5.1) of the pressure blocks (5) placed flexibly in the hollow arms (23) of at least double-arm rotor (6), ~~which is the rotor being~~ connected to a shaft (9) of the step motor (10), while the supporting occlusal path (3) is elevated in the direction to the rotor (6) rotation center above the transversally grooved working path (24) ~~consisting comprised~~ of the lead-in path (15), occlusal path (2) and releasing path (16).

2. (Currently amended) The peristaltic pump according to claim 1 ~~characteristic by the fact that the~~ wherein said pump segment-(1) forms angle  $\alpha = 90^\circ$  with the radius of ~~the said~~ working path ~~(24)~~ at the point of diversion of the pump segment-(1) from the working path-(24).

3.(Currently amended) The peristaltic pump according to ~~claims 1 and 2~~ characteristic by the ~~fact that the~~ Claim 1, wherein the circular occlusal path-(2) and nearly circular releasing path-(16) ~~is are~~ adjacent to an elevated circular supporting occlusal path-(3) along its a whole length thereof, for rolling of at least three pressure rollers-(4), and elevating the supporting occlusal path (3) ~~is elevated~~ above the occlusal path-(2) by distance  $d <$  than twice the width of the pump segment-(1) wall, and at the point of absolute release of the pump segment-(1), the supporting occlusal path-(2) ~~is being~~ elevated above the releasing path-(16) by a distance-(k) less or equal to the external diameter of the pump segment-(1), while the angle length of the occlusal path-(2) equals to the angle length of the releasing path-(16) corresponding to the distance from the point where the pressure roller (4) starts releasing the pump segment-(1) to the point of complete release of the pump segment (1) by the pressure roller-(4), where the pressing force of the pressing roller-(4) to the pump segment (1) is zero.

4. (Currently amended) The peristaltic pump according to ~~claims 1 through 3~~ characterized ~~by the fact that~~ Claim 1, wherein the rotor-(6) ~~is formed by~~ comprising:

at least a two-arm hollow profiles-(7), ~~in which the whole~~ an inside space of each arm ~~(23) of the each~~ hollow profile-(7) ~~is being~~ filled with a pressure block-(5), ~~each of them is~~ profile being split by a longitudinal partition (13) into two parts, ~~there is~~ ;

a spring (8) placed in each part, the pressure blocks (5) are being secured in each arm (23) of each hollow profile (7) ~~of the rotor (6)~~ within the an extent of its stroke thereof by a pin (12) located in a longitudinal groove (13) of the pressure block (5) and goes going through the first groove (14) made in the arm (23) of the hollow profile (7), ~~the springs (8) are~~ each spring being leant inside the pressure block (5) against the back wall of the slide mounting (5.1) in which there is; and

a freely located a roller (4), ~~the springs (8) are~~ each spring being pre-stressed at the other end against the body (22) located in the hollow profile (7), the body (22) is being fixed by a bayonet close to the shaft (9) of the step motor (10), the body (22) is being at least trilateral prism.

5. (Currently amended) The peristaltic pump according to ~~claims 1, 2 and 4~~ characterized by the fact that Claim 1, wherein the rotor (6) has two arms and wherein the body (22) is a tetralateral prism.

6. (Currently amended) The peristaltic pump according to ~~claims 1 through 4~~ characterized by the fact that Claim 1, wherein the rotor (6) has three arms ~~and, wherein~~ the body (22) is a trilateral prism, the rounded corners (35) ~~of which fit~~ thereof fitting into the second socket (34) at the place of connection of the arms (23) of the hollow profile (7), the front of the body (22) is being fitted with a cylindrical protrusion (29), in which a securing spring (17) is placed, ~~there are~~ wherein the back of the body has a securing groove (19) and an input groove (20) ~~at the back of the body (22); for a~~ securing pin (21) placed on the shaft (9), the width of the securing groove (19) at its most distant point from the cylindrical protrusion (29) ~~axis is lesser~~ being less than the diameter of the securing pin (21), ~~then~~ and wherein a pin (12) of the pressure block (5) fits into the first groove (14)

symmetrically placed at the front of the rotor (6) and hollow profile (7), the pin (12) ~~locks~~ locking at the same time into the appropriate second groove (33) of the control element (32) ~~designed for~~ handling the pressure blocks (5) when the rotor (6) is inserted into the working path (24), into which the pump segment (1) is pressed by expansion, the control element (32) ~~is~~ being connected by thread with the cylindrical protrusion (29).

7. (Currently amended) The peristaltic pump according to ~~claims 1 through 6~~ characterized ~~by the fact that the~~ Claim 1, wherein a minimum length of the occlusal path (2) is defined by the size of the a central angle of the rotor (6) rotation and is calculated from the formula  $360^\circ/\text{number of arms (23) of the rotor (6)}$ .

8. (Currently amended) The peristaltic pump according to ~~claims 1 through 7~~ characterized ~~by the fact that the~~ Claim 1, wherein said pressure block (5) ~~is provided with~~ is comprised of guiding grooves (11) for transversal guiding of the pump segment (1) for the grooved occlusal path (2).

9. (Currently amended) The peristaltic pump according to ~~claims 1 through 8~~ characterized ~~by the fact that~~ Claim 1, wherein the pressure roller (4) is a roll from a rolling bearing which slides by all its cylindrical surfaces thereof in sliding mounting (5.1) of the pressure block (5).

10. (Currently amended) The peristaltic pump according to ~~claims 1 through 9~~ characterized ~~by the fact that~~ Claim 1, wherein the sliding mounting (5.1) is finished with wiper blades (5.2) for

removing possible dirt in both direction of rotation of the rotor ~~(6)~~, ~~there are~~ and wherein sockets ~~(5.3)~~ are made on the head ~~(5.4)~~ of the pressure block ~~(5)~~ at the level of the blades ~~(5.2)~~.

11. (Currently amended) The peristaltic pump according to ~~claims 1 through 10~~ characterized ~~by the fact that the~~ Claim 1, wherein a length of stroke of the pressing block ~~(5)~~ moves in the range of 1.1 to 2.0 multiple of the external diameter of the pump segment ~~(1)~~.

12. (Currently amended) The peristaltic pump according to ~~claims 1 through 11~~ characterized ~~by the fact that~~ Claim 1, wherein the pressure roller ~~(4)~~ is an electric conductor and when it gets to touch with the touching a speed contact ~~(25)~~ or the position contact ~~(26)~~ located on the supporting occlusal path ~~(3)~~ ~~at the place~~ where the lead-in path ~~(15)~~ changes into the occlusal path ~~(2)~~ and with the common contact ~~(27)~~ placed opposite to them on the edge of the occlusal path ~~(2)~~, it the conductor is under electric current of very low voltage.

13. (Currently amended) The peristaltic pump according to ~~claims 1 through 12~~ characterized ~~by the fact that~~ Claim 1, wherein the pressure roller ~~(4)~~ is magnetized.